

# Installing Enphase in extreme climates.

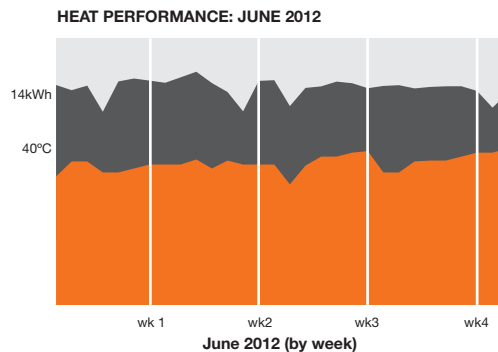
Enphase Microinverters are **robustly engineered and thoroughly tested** to ensure full functionality across all temperature ranges.

Enphase Microinverters installed in the hottest locations in the United States:

- Have not exceeded the maximum allowable internal temperature within their lifetimes.
- Do not have higher failure rates than microinverters in temperate environments.

The Enphase team puts its products through **millions of hours of testing** to validate product reliability over the full service life.

LAS CRUCES SITE INSTALLED BY SUNSPOT SOLAR SYSTEMS  
June 2012: Energy Produced and Average Temperature by Day



The power production of the Enphase System shows no decline on the hottest days in a New Mexico summer.

## CASE STUDY

### Sunspot Solar Systems New Mexico

Installing nearly 500 Enphase Systems since 2009, Sunspot Solar Systems are experts in projects located in hot environments. New Mexico summer high temperatures can reach over 40°C and roof decks can get to 60°C. Sunspot is so confident in the Enphase product that they guarantee energy

production for every installation they complete.

"Enphase microinverters are my product of choice in hot climates because they have proven to be robust and provide unparalleled reliability and performance," says Mellow Honek of Sunspot Solar.

## Designed for durability

At Enphase, quality and reliability starts at product definition and design, where our products are developed to the highest engineering standards with extreme climate conditions in mind.

Enphase Microinverters handle heat stress with internally equipped, thermal overload protection mechanisms that enable units to recover after extreme thermal events.

In addition to sound internal engineering, the exterior of the microinverter meets the tough enclosure standards of IP67 to withstand hot, wet, dusty and corrosive environments.

## Tested for toughness

Enphase Microinverters are rigorously tested against extreme heat, cold, and grid. Tests include:

- Thousands of hours of accelerated life testing in a temperature range much greater than the stated operating ambient range of -40°C to +65°C and internal range of up to 85 °C.
- Prolonged periods of high UV light in a weathering chamber.
- Grid event testing with surges at much higher voltages than those caused by lightning, even in locations with extremely high incidences of lightning strikes such as Florida and Texas.

## Installing in hot environments

A recent study of internal temperature data from 75,000 Enphase Microinverters in five of the hottest locations in the US found that, where some microinverters were operating near the upper temperature limit, others in similar heat in nearby installations were reporting 50% cooler readings. This difference in internal temperature readings for the same product indicates that installation practices may have an effect.

All installations, especially those in hot regions, should always follow best installation practices, ensuring proper clearance between module, microinverter and roof to guarantee adequate air circulation.